REMARKS

Favorable reconsideration of this application is respectfully requested in view of the following remarks.

STATUS OF CLAIMS AND SUPPORT FOR AMENDMENTS

Upon entry of this amendment, claims 20-21, 23-30, 34-40, 48 and 49 will be pending in this application

Applicants has amended claim 20 to incorporate the features of claim 22. Since claim 22 has previously been examined on the merits by the Examiner, this amendment cannot raise new issues or raise the issue of new matter, and should therefore be entered under 37 C.F.R. § 1.116(b).

Moreover, as the finality of the Office action dated July 16, 2008 is completely improper for the reasons set forth in the Petition to Withdraw Premature Finality of Rejection Under 37 C.F.R. § 1.181, filed August 5, 2008., Applicants should be entitled to amend the claims as a matter of right. In this regard, Applicants note that, despite having been filed more than four months ago, and despite an unanswered Status Inquiry filed October 15, 2008 (and several unanswered telephone messages for various PTO management officials), this Petition still has not been decided on. Applicants file this response in part in order to minimize the prejudice to their rights that has occurred and will occur as the result of the failure of the U.S. PTO to timely decide Applicants' Petition.

OBVIOUSNESS REJECTIONS

1. Rutz in view of Kondo

In paragraph 4 of the Office action dated July 16, 2008, the Office has rejected claims 20-25, 30, 34-40, and 48-49 under 35 U.S.C. § 103(a) over U.S.

Patent No. 5,154,881 (Rutz) in view of U.S. Patent No. 3,901,661 (Kondo).

Applicants respectfully traverse this rejection for the reasons given below and in the response filed June 23, 2008, which is incorporated herein by reference.

The Office action admits:

> Rutz does not teach wherein less than about 5% of the powder particles have a size below 45 μm. Rutz teaches that the weight average particle size of the powder is from 1-1000 microns, more desirably 10-500 microns and that the maximum particle size is desirably less than 350 microns (see col. 3). Rutz teaches that a variety of other powders including pre-alloyed steel powders may be used in the invention (see cols. 2-3).

Office action dated July 16, 2008 at page 4. The Office attempts to cure this deficiency by reference to Kondo, stating:

> Kondo teaches a water-atomized pre-alloyed steel powder (see abstract, cols. 7-8, claim 1). Kondo teaches that the particle size distribution of the steel powder is such that 2% of the [powder] is smaller than 325 mesh, thus meeting the limitation wherein less than about 5% of the powder particles have a size below 45 μm.

Office action dated July 16, 2008, page 4 (emphasis added). The Office concludes:

> It would have been obvious to one of ordinary skill in the art at the time of invention to have practiced the method of Rutz while using the water-atomized, completely alloyed steel powder of Kondo, because Kondo teaches that compacts made from the powder will exhibit excellent hardenability and mechanical properties (see cols. 3-4).

Office action dated July 16, 2008, page 4 (emphasis added).

However, the Office overlooks the fact that Kondo discloses steel powder for the formation of structural parts by powder forging. Kondo states:

> This invention relates to a prealloyed steel powder for formation of structural parts by powder forging, which has a chemical composition and characteristics suitable for providing steels meeting the above requirements, and the invention also relates to a powder forged steel article prepared from such prealloyed steel powder.

Kondo, column 1, lines 13-19 (emphasis added). Powder forging includes compaction under pressure at least twice:

> The above powder was mixed with graphite powder and incorporated with 1% of zinc stearate, and the mixed powder was subjected to the compaction forming under a pressure of 4.5 tons per square centimeter to have a cylindrical shape having a diameter of 58 mm and a height of 40 mm. The green density was 6.2 g/cm^3 at this time. The so-formed compact was dewaxed in a dissociated ammonia gas, and sintered for 30 minutes at 1120 °C in a dissociated ammonia gas. Then, it was heated in a nitrogen inert gas (NX gas) at 900 °C for 30 minutes and forged under a pressure of about 13 tons per square centimeter with use of a mechanical press. The resulting powder forged article has a carbon content of 0.17% and a density of 7.87 g/cm^3. Then, this powder forged article was heated at 900 °C for 30 minutes in a nitrogen inert gas (NX gas), and quenched in oil and tempered at 600 °C for 30 minutes.

Kondo at column 8, lines 22-36 (emphasis added).

Kondo goes on to state:

> As mentioned above, we prepared various prealloyed steel powders containing a variety of alloying elements and made experiments on these prealloyed steel powders. From the results of these experiments it was confirmed that the characteristics of prealloyed steel powders for powder forging, inclusive of those claimed in this invention, are quite different from those of conventional powders for sintering.

Kondo at column 3, lines 6-13 (emphasis added). Applicants submit that this constitutes a teaching away from using the powders of Kondo, which are suitable for powder forging, in a process such as that of Rutz, which is directed to a conventional sintering process. It is improper to combine references where the references teach away from their combination. See MPEP § 2145(X)(D).

In addition, the above quoted statements in Kondo make clear that even if one of ordinary skill might expect that materials made from the powder of Kondo will exhibit excellent hardenability and mechanical properties, as the Office alleges, this is true only for the powder forged materials of Kondo. There is no indication that

such an expectation would be reasonable for conventionally sintered materials using the powder of Kondo. To the contrary, there is every reason for one of ordinary skill in the art to reasonably expect that these advantages would not be obtained in a conventionally sintered material because of the statements in Kondo regarding the differences between materials suitable for powder forging and materials suitable for conventional sintering.

Applicants submit that Kondo teaches away from using the powders disclosed therein in conventional sintering processes, and that one of ordinary skill in the art would not expect that the alleged benefits of Kondo would apply to a conventionally sintered material such as is described in Rutz. Accordingly, Applicants respectfully submit that one of ordinary skill in this art would not have combined the teachings of Kondo with those of Rutz. As a result, the Office has failed to establish a *prima facie* case of obviousness.

Moreover, Applicants respectfully submit that, were one of ordinary skill in the art to combine the teachings of Kondo with Rutz, one would not simply use the particles of Kondo in the process of Rutz, but would also include the additional pressing step that forms part of the powder forging method described by Kondo. Claim 20 makes clear that such a process, which requires two separate pressing steps, is not within the scope thereof. This is because Kondo clearly indicates that the powders used for conventional sintering processes are different from those used for powder forging, and that the alloy particles that the Office relies upon for its hindsight reconstruction of Applicants' invention is disclosed by Kondo as suitable for powder forging, rather than for conventional sintering. Accordingly, even if the teachings of Rutz are combined with Kondo, the result is not Applicants' claimed

invention. For this reason as well, the Office has failed to establish a *prima facie* case of obviousness, and this rejection should be withdrawn.

In addition, Applicants respectfully submit that any prima facie case of obviousness that might be said to exist is rebutted by the Declaration of Paul Skoglund, filed with the response of June 23, 2008, and discussed therein (that discussion is incorporated herein by reference). In improperly dismissing the Declaration, the Office states:

> The declaration under 37 C.F.R. 1.132 filed 23 June 2008 is insufficient to overcome the rejection of claims based upon Ozaki in view of Rutz as set forth in the last Office action because: the declaration of Paul Skoglund has been carefully considered, but does not compare the closest prior art to the claimed invention. In the declaration, at page 2, paragraph 13, applicant states, "A powder according to the invention as claimed in U.S. Patent Application Serial No. 10/689,656 is Astaloy Mo from Höganäs AB, Sweden, and is a water-atomized completely alloyed steel powder containing 1.5 wt% Mo."
>
> The examiner disagrees that Astaloy Mo is a water atomized completely alloyed steel powder. One of ordinary skill in the art would understand that steel by definition includes carbon in significant amounts. Astaloy Mo is an alloy of iron and molybdenum, and does not meet the limitation of steel. Applicant is directed to the definition of steel in Hawley's Condensed Chemical Dictionary (see attached form PTO-892).

Office action dated July 16, 2008 at pages 12-13.

Applicants respectfully submit that the Office's analysis provided above is incomplete, and unsupported by the record. Hawley's Condensed Chemical Dictionary does not state that Astaloy Mo is not a steel. Applicants submit an excerpt from ASM Metals Handbook, ninth edition, volume 7. This excerpt is, unlike the Office citation to a mere general purpose chemical dictionary, actually relate to powder metallurgy (i.e., to the subject matter of this application. In that excerpt, Table 2 on page 102 discloses the carbon content of commercial low-carbon alloy

steel powders. The disclosed contents are 0.01, 0.05, and 0.10%, respectively. The Handbook shows that, contrary to the incorrect and overly simplistic analysis presented by the Office, those with ordinary skill in this art recognize that low carbon contents are possible for powders that are considered to be "steel."

Applicants also enclose an excerpt from a Höganäs AB handbook that describes Astaloy Mo as a steel powder. The carbon content of Astaloy 85 Mo is given as < 0.01%.

Applicants respectfully submit that Astaloy Mo is not excluded from the definition of a "steel" because of its low carbon content, since the ASM Handboodk establishes that low carbon content iron alloys are also considered to be steels by those with ordinary skill in the art. Similarly, the Höganäs AB handbook establishes that those of ordinary skill in this art consider Astaloy Mo to be a steel, and that the Astaloy alloys fall into the category of low-carbon steels, as described in the ASM Handbook. If the Examiner or his supervisor have some personal knowledge that Astaloy Mo is not a steel, and would not be considered a steel by those having ordinary skill in the art, then one or both should have made their knowledge of record in a declaration under 37 C.F.R. § 1.104(d)(2). Absent some factual support for the allegations in the Office action (other than the citation of a general purpose chemical dictionary), the treatment by the Office of the Declaration of Paul Skoglund was completely improper.

Applicants submit that when the Declaration is properly considered, it is clear that the ejection forces obtained using Applicants' claimed method are unexpectedly reduced when compared to that needed for the standard powder produced according to Rutz. Applicants submit that these unexpectedly different results rebut any *prima*

facie case of obviousness that might be said to exist with respect to the process taught by Rutz. For this reason as well, the Office's rejection should be withdrawn.

2. Ozaki

In paragraph 5 of the Office action dated July 16, 2008, the Office has rejected claims 20-30, 34-38, 40, 48, and 49 under 35 U.S.C. § 103(a) as being obvious over U.S. Patent No. 6,638,335 (Ozaki). Applicants respectfully traverse this rejection for the reasons given below.

The Office action states:

> Ozaki teaches that the powder used is preferably of a large particle size such that more than 90-100% of the particles are greater than 150 μm in size (see Summary of the Invention, Detailed Description). The particle size range taught by Ozaki significantly overlaps the claimed particle size range wherein less than about 5% of the particles have size less than 45 μm, establishing a prima facie case of obviousness for the claimed range. It would have been obvious to one of ordinary skill in the art at [the] time of [the] invention to have selected a particle size distribution within the range as claimed, because Ozaki teaches the same utility over a substantially overlapping range. Applicant is further directed to MPEP 2144.05.

Office action dated July 16, 2008 at pages 7-8 (emphasis added).

First, nowhere does Ozaki state anything about particles having a size below 45 μm, much less state that less than about 5% of the particles have a size below 45 μm. That between 0% and 10% of particles of Ozaki pass through a sieve having an opening of 150 μm tells one of ordinary skill in the art absolutely nothing about the percentage of particles that would pass through an opening of 45 μm. The Office's conclusion that there is "significant overlap" between the particle size distribution disclosed Ozaki and that recited in claim 20 is based upon pure conjecture, and is without any support in the record. Again, if the Examiner or his supervisor have personal knowledge that the particles used by Ozaki have a particle size distribution

where less than 5% of the particles will pass a 45 μm opening, then this should have been made of record in the form of a declaration under 37 C.F.R. § 1.104(d)(2).

Second, the Office's citation of MPEP § 2144.05 (presumably MPEP § 2144.05(I)) is inapposite, and incorrect. There is no indication in Ozaki that the disclosed particle size distribution overlaps or encompasses a distribution having less than 5% of particles smaller than 45 μm. This is because Ozaki is completely silent with respect to any percentage of particles having a size of less than 45 μm. The percentage of particles that are less than 45 μm is not even mentioned as a result effective operating parameter -- the smallest particle size mentioned is 150 μm. Accordingly, there can be no disclosure of any overlap. Moreover, 150 μm is not so close to 45 μm that one of ordinary skill in the art would have expected them to have the same properties.

To the contrary, Ozaki indicates that the only relevant concern is whether the powder has a substantial quantity of particles with a size less than 150 μm, and even this quantity can apparently be quite large:

> According to a second aspect of the invention, a highly compressible iron powder for powder metallurgy comprises, on the basis of mass percent of fractions after sieve classification using sieves defined in Japanese Industrial Standard (JIS) Z 8801-1:00 Edition 2000), substantially 0% particles that do not pass through a sieve having a nominal opening of 1 mm; more than 0.0% to about 2% or less particles that pass through a sieve having a nominal opening of 1 mm and do not pass through a sieve having a nominal opening of 180 μm; about 30% and more to about 70% or less particles that pass through a sieve having a nominal opening of 180 μm and do not pass through a sieve having a nominal opening of 150 μm; and about 20% and more to about 60% or less particles that pass through a sieve having a nominal opening of 150 μm, wherein the Vickers microhardness of the particles that do not pass through a sieve having a nominal opening of 150 μm is at most about 110. Also, the iron powder does not substantially contain particles that do not pass through a sieve having a nominal opening of 1 mm.

Ozaki at column 2, line 52 - column 3, line 3 (emphasis added). Thus, to the extent that the amount of fine particles present in the powder is even recognized by Ozaki as important, a substantial number of fines is permissible. Again, there is no indication in Ozaki of any distribution of particle sizes smaller than 150 μm, much less of the distribution of particles sized less than 45 μm. Moreover, with such a large number of particles below 150 μm, there is no reason to expect that less than 5% will be smaller than 45 μm.

In short, the present situation is not one like that contemplated by MPEP § 2144.05(I) where, e.g., the claim recites a thickness of 50 to 100 Angstroms, and the prior art teaches that the thickness should be "about 100 Angstroms." *See In re Geisler*, 116 F.3d 1465, 1469-71, 43 USPQ2d 1362, 1365-66 (Fed. Cir. 1997). Accordingly, the Office has failed to establish a *prima facie* case of obviousness, and this rejection should be withdrawn.

3. Ozaki in view of Ferguson et al.

In paragraph 6 of the Office action dated July 16, 2008, the Office has rejected claim 39 under 35 U.S.C. § 103(a) as obvious over Ozaki in view of Ferguson et al., "Powder Shaping and Consolidation Technologies," ASM Handbook, vol. 7, 1998, pp. 313-320.

Applicants respectfully submit that Ferguson et al. does not cure the deficiencies of Ozaki noted above. As a result, Applicants respectfully submit that the Office has failed to establish a *prima facie* case of obviousness, and that this rejection should be withdrawn.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: January 2, 2009 By: _____

Bruce D. Gray
Registration No. 35799

P.O. Box 1404
Alexandria, VA 22313-1404
703 836 6620